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Brad A. Medford

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NGUYEN, ANH NGOC M

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/797,913	Applicant(s) MEDFORD, BRAD A.	
	Examiner Anh Ngoc Nguyen	Art Unit 2473	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 April 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8, 15-17, 25 and 26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8, 15-17, 25-26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Art Unit: 2473

Response to Amendment

1. Applicant's Arguments/Remarks filed April 27, 2010 with respect to claims 1 – 8, 15 – 17 and 25 – 26 have been fully considered but they are not persuasive.

Claims 25 and 26 are new. Claims 1 – 8, 15 – 17 and 25 – 26 are pending.

Continued Examination Under 37 CFR 1.114

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on April 27, 2010 has been entered.

Response to Arguments

3. Applicant alleges on pages 6 - 9 of Applicant's Remarks that the cited portions of Levi et al. (US PN. 7,376,144; hereinafter Levi), Davis et al. (US PN. 5,459,600; hereinafter Davis), Edasawa and Lee, individually or in combination, do not disclose or suggest the specific combination of claim 1 (similar to claim 15). Applicant also alleges the cited references fail to disclose or suggest *an ATM signal that is phase modulated based on an IP signal*.

Examiner respectfully disagrees. Levi discloses a method for information transfer allowing for native transfer of voice, data and any other digital service information over a passive optical network (abstract). Figure 1 shows an IP 14 and ATM 16 combined within frame

1. Davis discloses having N phase modulators, one in each of the N paths of the transmission

Art Unit: 2473

units, are used to apply a separate and individual telecommunication signal (payload) to the portion of the light in that path. These N separate payloads may be of the same or different protocols. These N separate payloads may have the same or different bit rate/second. These N separate payloads may be digital or analog (abstract). Davis suggests that the N separate payloads may be of different protocols therefore the different protocols may be ATM and IP. Therefore it would have been obvious to modify the invention of Levi with Davis's teachings of having N phase modulators to perform phase modulation on N separate payloads that may be of different protocols (such as ATM and IP) in order to provide an optical telecommunication system with reduced number of optical components for multiplexing various payloads on the same optical transmission path, as discussed by Davis (see col. 3 lines 9 - 14) wherein the end result is shown by the Figure 1 of Levi (a combined ATM and IP within frame 1).

In response to Applicant's arguments that Davis does not disclose or suggest *communicating a combined ATM/IP signal via an optical medium, where the combined ATM/IP signal includes an ATM signal that is phase modulated based on an IP signal*, Examiner respectfully disagrees. It is noted that this claimed limitation was rejected as being unpatentable over Levi in view of Davis and further in view of Edasawa and Lee. Davis illustrates in Figure 2 an optical path 16 for communicating the phase modulated signals to the receiver and Frame shows in Figure 1 the downstream transmission of frame 1 having IP 14 and ATM 16. Therefore, the combination of Levi and Davis disclose the above claimed limitation of *communicating a combined ATM/IP signal via an optical medium, where the combined ATM/IP signal includes an ATM signal that is phase modulated based on an IP signal*.

As a result the argued features are shown by the cited references as set forth below:

DETAILED ACTION

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claim 7 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The original specification and the claims do not specifically define what AMT is. It is possible that AMT is a typographical error for ATM.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1, 5, 7, 8, 15 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Levi et al. (US 7,376,144; hereinafter refer as Levi) in view of Davis et al. (5,459,600; hereinafter refer as Davis) and further in view of Edasawa et al. (US 6,831,981; hereinafter refer as Edasawa) and Lee et al. (US 2004/0264400; hereinafter refer as Lee).

Levi discloses protocol for native service transport over point to multipoint passive optical network comprising the following features:

Regarding claim 1, Levi discloses a method comprising: communicating an a combined

Art Unit: 2473

asynchronous transfer mode/internet protocol (ATM/IP) signal via an optical medium (see abstract, col. 1 lines 45 – 67, col. 2 lines 1 – 11, col. 3 lines 1 – 10 lines 50 - 60, Fig. 1, Fig. 2, IP 14 and ATM 16 within frame 1 are sent in a optical path).

Regarding claim 7, Levi discloses wherein the first ONT is at a first location and the second ONT is at a second location (see Fig. 1, Fig. 2, col. 1 lines 65 – 67 and col. 2 lines 1 – 12, a point to multipoint network...to multiple NT's) and wherein the first ONT is to extract an AMT stream uniquely associated with the first user location (col. 5 lines 55 – 64, the NT's filter ATM cells in the ATM service block using the ATM header itself...and the NT's read the virtual path address).

Regarding claim 8, Levi discloses wherein the combined ATM/IP signal is communicated via a passive optical network (see Fig. 1, Fig. 2, col. 1 lines 65 – 67 and col. 2 lines 1 – 12, IP 14 and ATM 16 within frame 1 are sent in a optical path; see abstract, over a passive optical network).

Levi discloses the claimed limitation as stated above. However, Levi does not disclose the feature of phase modulation of two signals (ATM and IP).

Davis discloses using phase modulators to modulate signals (payload) wherein the signals may be of the same or different protocols (i.e. ATM, IP...etc...) (see abstract, col. 9 lines 7 - 15).

It would have been obvious to one ordinary skilled in the art at the time the invention was made to modify the invention of Levi, and use a phase modulator to modulate signals of the same or different protocol, as taught by Davis, in order to provide an optical telecommunication system with a reduced number of optical components for multiplexing various payloads on the same optical transmission path, as discussed by Davis (see col. 3 lines 9 - 14).

Art Unit: 2473

Regarding claim 1, the combination of Levi and Davis disclose wherein the combined ATM/IP signal comprises an asynchronous transfer mode (ATM) signal that is phase modulated based on an internet protocol (IP) signal (see Levi: Fig. 1, Fig. 2, shown are frames with IP 14 and ATM 16; see Davis: abstract, col. 9 lines 6 – 15, Fig. 2, Fig. 3, 26F and 26S are phase modulators for modulating signals).

Regarding claim 5, the combination of Levi and Davis disclose further comprising forming the combined ATM/IP signal by modulating a phase of the ATM signal based on the IP signal (see Levi: Fig. 1, Fig. 2, shown are frames with both IP 14 and ATM 16 together; see Davis: abstract, col. 9 lines 6 – 15, Fig. 2, Fig. 3, 26F and 26S are phase modulators for modulating signals).

Regarding claim 15, Levi discloses an apparatus to communicate an asynchronous transfer mode (ATM) signal and an internet protocol (IP) signal (see abstract, Fig. 1, Fig. 2, col. 1 lines 45 – 67, col. 2 lines 1 - 11, frame 1 with IP 14 and ATM 16 are sent downstream and upstream), the apparatus comprising: an optical line terminal (OLT) (see col. 1 lines 49 – 54, col. 5 lines 4 – 25 lines 55 - 60, LT – line termination).

Regarding claim 25, the combination of Levi and Davis disclose further comprising demodulating a received signal (see Davis: col. 9 lines 40 – 44, demodulation may occur by use of a receiver unit) and outputting a received IP stream derived from the received signal (see Levi: col. 6 lines 1 – 8, the NT's use this information to filter and delineate IP packets in the IP service block).

Levi discloses the features of claim 15 as stated above and further shows an ATM and an IP signal with the same frame (Fig. 1, Fig. 2). Levi does not disclose a phase modulator.

Art Unit: 2473

Davis discloses using phase modulators to modulate signals (payload) wherein the signals may be of the same or different protocols (i.e. ATM, IP..etc..) (see abstract, col. 9 lines 7 - 15).

It would have been obvious to one ordinary skilled in the art at the time the invention was made to modify the invention of Levi, and use a phase modulator to modulate signals of the same or different protocol, as taught by Davis, in order to provide an optical telecommunication system with a reduced number of optical components for multiplexing various payloads on the same optical transmission path, as discussed by Davis (see col. 3 lines 9 - 14).

Regarding claim 15, the combination of Levi and Davis disclose the OLT (see Levi: abstract, col. 1 lines 49 – 54, LT-line termination in a passive optical network) comprising a phase modulator configured to phase modulate the ATM signal based on the IP signal to produce a combined asynchronous transfer mode/internet protocol (ATM/IP) signal (see Levi: Fig. 1, Fig. 2, shown are frames with both IP 14 and ATM 16 together; see Davis: abstract, col. 9 lines 6 – 15, Fig. 2, Fig. 3, 26F and 26S are phase modulators for modulating signals), the OLT further to output the combined ATM/IP signal (see Levi: Fig. 1, Fig. 2, where shown are frames with IP 14 and ATM 16 sent together downstream and upstream).

Levi shows in Figure 1 and Figure 2 a combined ATM/IP signal. Levi and Davis disclose the claimed limitations as stated above. Levi and Davis do not specifically disclose regarding claim 1, transmitting the combined ATM/IP signal via the optical medium to a first optical network termination (ONT), wherein the first ONT does not include demodulator circuitry; and transmitting the combined ATM/IP signal to a second ONT, wherein the second ONT includes the demodulator circuitry; regarding claim 6, wherein the combined ATM/IP signal is transmitted via an ATM-based network comprising a G.983-based network; regarding

Art Unit: 2473

claim 15, wherein the combined ATM/IP signal is transmitted to a first optical network termination (ONT) that does not include demodulator circuitry and a second ONT that does include demodulator circuitry.

Regarding claim 1, Edasawa and Lee disclose transmitting the combined ATM/IP signal via the optical medium to a first optical network termination (ONT), wherein the first ONT does not include demodulator circuitry (see Edasawa: Fig. 16, ONUs 20_1 to 20_n with no demodulators...) and transmitting the combined ATM/IP signal to a second ONT, wherein the second ONT includes the demodulator circuitry (see Lee: Fig. 2, Fig. 4, QAM demodulators 222, 223, para. 0020, 0030).

Regarding claim 6, Edasawa discloses wherein the combined ATM/IP signal is transmitted via an ATM-based network comprising a G.983-based network (see col. 1 lines 42 – 45, G.983 that is ITU-T recommendation is set up in the ATM-PON system).

Regarding claim 15, Edasawa and Lee disclose wherein the combined ATM/IP signal is transmitted to a first optical network termination (ONT) that does not include demodulator circuitry (see Edasawa: Fig. 16, ONUs 20_1 to 20_n with no demodulators...) and a second ONT that includes the demodulator circuitry (see Lee: Fig. 2, Fig. 4, QAM demodulators 222, 223, para. 0020, 0030).

It would have been obvious to one ordinary skilled in the art at the time the invention was made to modify the invention of Levi and Davis to include ONTs with and without a demodulator, in order to improve the efficiencies of unicasting, vendor broadcasting, group broadcasting, ciphering, and deciphering, as discussed by Edasawa (see col. 3 lines 60 - 63) and

Art Unit: 2473

in order to use an ONT that can employ a low price optical receiver meeting relatively low quality specifications, as discussed by Lee (see para. 0018).

8. Claims 2 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Levi et al. (US 7,376,144; hereinafter refer as Levi) in view of Davis et al. (5,459,600; hereinafter refer as Davis) and further in view of Edasawa et al. (US 6,831,981; hereinafter refer Edasawa) and Lee et al. (US 2004/0264400; hereinafter refer as Lee) and Aliahmad et al. (US 6,479,978; hereinafter refer as Aliahmad).

Levi and Davis disclose the ATM signal is phase modulated based on the IP signal.

Regarding claim 2, Aliahmad discloses wherein the ATM signal is phase modulated based on the IP signal without exceeding a specified tolerance of symbol period of the ATM signal (see col. 1 lines 40 - 56, to ensure that the phase difference between signals 106 and 107 is within acceptable tolerances of the expected phase shift from phase modulator 102...).

Regarding claim 16, Aliahmad discloses wherein the phase modulator is further configured to phase modulate the ATM signal based on the IP signal without exceeding a specified tolerance of symbol period of the ATM signal (see col. 1 lines 40 - 56, to ensure that the phase difference between signals 106 and 107 is within acceptable tolerances of the expected phase shift from phase modulator 102...).

It would have been obvious to one ordinary skilled in the art at the time the invention was made to modify the invention of Levi, Davis, Edasawa and Lee, and have the features, as taught by Aliahmad, in order to provide precise timing measurement, as discussed by Aliahmad (see col. 1 lines 12 - 15).

Art Unit: 2473

9. Claims 3, 4 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Levi et al. (US 7,376,144; hereinafter refer as Levi) in view of Davis et al. (5,459,600; hereinafter refer as Davis) and further in view of Edasawa et al. (US 6,831,981; hereinafter refer Edasawa), Lee et al. (US 2004/0264400; hereinafter refer as Lee) and Beidas et al (6,608,874; hereinafter refer as Beidas).

Levi and Davis disclose the phase modulation of IP and ATM signals but do not specifically disclose the phase modulation of multiple bits as stated below.

Levi, Davis, Edasawa and Lee do not disclose the following features: regarding claim 3, wherein the phase modulating encodes multiple bits of the IP signal per pulse in the ATM signal; regarding claim 4, wherein the phase modulating encodes two bits of the IP signal per pulse in the ATM signal; regarding claim 17, wherein the phase modulator is further configured to encode multiple bits of the IP signal per pulse in the ATM signal.

Beidas discloses method and apparatus for quadrature multi pulse modulation of data for spectrally efficient communication comprising the following features:

Regarding claim 3, Beidas discloses wherein the phase modulating encodes multiple bits of the IP signal per pulse in the ATM signal (see col. 1 lines 34 – 67, communicating two bits of information on each quadrature component of a carrier signal during a single signaling interval).

Regarding claim 4, Beidas discloses wherein the phase modulating encodes two bits of the IP signal per pulse in the ATM signal (see col. 1 lines 34 – 67, communicating two bits of information on each quadrature component of a carrier signal during a single signaling interval).

Regarding claim 17, Beidas discloses wherein the phase modulator is further configured to encode multiple bits of the IP signal per pulse in the ATM signal (see col. 1 lines 34 – 67,

Art Unit: 2473

communicating two bits of information on each quadrature component of a carrier signal during a single signaling interval).

It would have been obvious to one ordinary skilled in the art at the time the invention was made to modify the invention of Levi, Davis, Edasawa and Lee, and have the features, as taught by Beidas, in order to minimize as possible as possible the power required for data transmission for cost and energy conservation, as discussed by Beidas (see col. 2 lines 26 - 30).

10. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Levi et al. (US 7,376,144; hereinafter refer as Levi) in view of Davis et al. (5,459,600; hereinafter refer as Davis) and further in view of Edasawa et al. (US 6,831,981; hereinafter refer Edasawa), Lee et al. (US 2004/0264400; hereinafter refer as Lee) and Czerwiec et al. (US PN. 6,940,859).

Levi, Davis, Edasawa and Lee do not disclose regarding claim 26, wherein the OLT further comprises a phase demodulator.

Regarding claim 26, Czerwiec discloses wherein the OLT further comprises a phase demodulator (see col. 28 lines 27 – 34, the line termination...wherein said demodulated and decoded broadband signal is demodulated according to a carrierless amplitude and phase demodulation technique).

It would have been obvious to one ordinary skilled in the art at the time the invention was made to modify the invention of Levi, Davis, Edasawa and Lee, and have the features, as taught by Czerwiec, in order to solve the management problems by combining data management features of ATM with physical layer transmission flexibility of xDSL, as discussed by Czerwiec (see col. 1 lines 42 - 45).

Conclusion

Examiner's Note: Examiner has cited particular paragraphs, columns and line numbers in the references applied to the claims above for the convenience of the applicant. Although the specified citations are representative of the teachings of the art and are applied to specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested from the applicant in preparing responses, to fully consider the references in entirety as potentially teaching all or part of the claimed invention, as well as the context of the passage as taught by the prior art or disclosed by the Examiner. In the case of amending the claimed invention, Applicant is respectfully requested to indicate the portion(s) of the specification which dictate(s) the structure relied on for proper interpretation and, also to verify and ascertain the metes and bounds of the Claimed invention.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anh Ngoc Nguyen whose telephone number is (571) 270-5139. The examiner can normally be reached on M - F, 7AM to 3PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kwang Yao can be reached on 5712723182. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2473

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Anh Ngoc Nguyen/
Examiner, Art Unit 2473
June 16, 2010

/KWANG B. YAO/
Supervisory Patent Examiner, Art Unit 2473